

- 37 -

A composition of this invention will usually be marketed as a product comprising a container with a quantity of the composition therein, where the container has at least one aperture for the delivery of composition, and means for

- 5 urging the composition in the container towards the delivery aperture. Conventional containers take the form of a barrel of oval cross section with the delivery aperture(s) at one end of the barrel.

- 10 A composition of this invention may be sufficiently rigid that it is not apparently deformable by hand pressure and is suitable for use as a stick product in which a quantity of the composition in the form of a stick is accommodated within a container barrel having an open end at which an end
- 15 portion of the stick of composition is exposed for use. The opposite end of the barrel is closed.

- Generally the container will include a cap for its open end and a component part which is sometimes referred to as an
- 20 elevator or piston fitting within the barrel and capable of relative axial movement along it. The stick of composition is accommodated in the barrel between the piston and the open end of the barrel. The piston is used to urge the stick of composition along the barrel. The piston and stick
- 25 of composition may be moved axially along the barrel by manual pressure on the underside of the piston using a finger or rod inserted within the barrel. Another possibility is that a rod attached to the piston projects through a slot or slots in the barrel and is used to move
- 30 the piston and stick. Preferably the container also includes a transport mechanism for moving the piston

comprising a threaded rod which extends axially into the stick through a correspondingly threaded aperture in the piston, and means mounted on the barrel for rotating the rod. Conveniently the rod is rotated by means of a hand-wheel mounted on the barrel at its closed end, i.e. the opposite end to the delivery opening.

If a composition of this invention is softer, but still capable of sustaining its own shape it will be more suited for dispensing from a barrel with a closure instead of an open end, where the closure has one or more apertures through which composition from the barrel can be extruded. The number and design of such apertures is at the discretion of the designer of the package.

The component parts of such containers are often made from thermoplastic materials, for example polypropylene or polyethylene. Descriptions of suitable containers, some of which include further features, are found in US patents 4865231, 5000356 and 5573341.

Having described the invention in general terms. specific embodiments thereof will be described more fully by way of example only.

#### Example 1

In this Example, cellobiose heptanonoate ester compounds according to the present invention and summarised in Table 1 below were made in a three step route, the first two steps of which was common to all variants and the third step of

- 39 -

which was carried out by one of three routes. The route is exemplified for cellobiose heptanonanoate esters. Other acylated cellobiose esters were made by substituting the same molar amounts of alternative acylating agents for nonanoic acid.

Step 1, Preparation of cellobiose octanonanoate

- Cellobiose was esterified with nonanoic acid to yield the fully esterified product in the form of its  $\alpha$ -anomer following a procedure generally as described in Takada et al, Liquid Crystals, Volume 19, No 4, page 441 (1995).

The following materials, obtained from Acros Organics - Fisher Scientific, were used:

- D-(+)-cellobiose, 20 grams, 0.058 moles  
Nonanoic acid, 591.6 grams, 3.74 moles  
Trifluoroacetic anhydride, 297.6 grams, 1.42 moles.

- The nonanoic acid was charged into a 2 litre flange pot equipped with an overhead stirrer, water condenser and addition inlet together with the trifluoroacetic anhydride. The resultant clear mixture was stirred up and heated to 100°C using a silicone oil bath and temperature probe. During heating it was noted that the colour of the reaction mixture darkened and developed a dark brown tinge. After allowing the mixture to stir for one hour at 100°C, the cellobiose was slowly added via a solid powder funnel to the dark activated solution, and a dirty brown suspension was formed which re-dissolved forming a clear black solution within 10-20 minutes.